AMENDMENTS TO THE SPECIFICATION

The following are replacement paragraphs for the specification including markings showing the changes made relative to the immediate prior version.

Replace paragraph (0028) with the following new paragraph (0028):

(0028) A plug tool 10 according to the present invention is depicted in Fig. 1 and comprises a drawing plug 12 assembled to a shaft 14 via a connector 16. The plug 12 has a plug body 17 with a forward end 18, a rearward end 20, a central longitudinal axis 22 and a bore 24 extending therethrough coaxial with the central longitudinal axis 22. The plug 12 is formed with a plurality of external grooves 26 extending longitudinally along the plug at a helix angle A to the central longitudinal axis 22. The grooves 26 are disposed at equally spaced locations about the central longitudinal axis 22 in alternating arrangement with external lands 28, with each groove 26 being disposed between a pair of adjacent lands 28. As seen in Fig. 1, each groove 26 terminates at a forward groove end and at a rearward groove end on the plug body 17. Each land 28 terminates at a forward land end and at a rearward land end on the plug body 17. As shown in cross-section normal to a groove 26 in Fig. 2, each groove 26 comprises a root surface 30 and a pair of flank surfaces 32 and 34 extending angularly outwardly from the root surface 30 to land surfaces 36 of the adjacent lands 28, respectively. The root surface 30 is arcuate and is parallel and concentric with the land surfaces 36 of adjacent lands 28. The flank surfaces 32 and 34 for each groove 26 extend angularly outwardly from the root surface 30 at different radial angles in directions away from one another, such that the grooves 26 are asymmetrical in normal cross section. The flank surface 32 may be considered a rearward flank surface since it is closer to the rearward end 20 and shaft 14 than the flank surface 34, and the flank surface 34 may be considered a

forward flank surface located further away from shaft 14 and closer to the forward end 18 than the flank surface 32. As explained below, the rearward flank surfaces 32 face forwardly and toward the forward direction of draw for tubing drawn longitudinally over and relative to the plug body 17. The forward flank surfaces 34 face rearwardly and in opposition to the forward direction of longitudinal draw for the tubing over and relative to the plug body 17. The root surface 30 of each groove 26 has a width W between a radius R and a radius R′. The width W of the grooves 26 at the root surfaces 30 is equal or substantially equal to the width of the land surfaces 36 as near as practically possible. The flank surface 32 defines a first radial flank angle B with the radius R while the flank surface 34 defines a second radial flank angle C, less than the first radial flank angle B, with the radius R′. The rearward flank surface 32 is angled or offset from the radius R in the rearward direction opposed to the forward direction of draw for the tubing. The forward flank surface 34 is angled or offset from the radius R′ toward the forward direction of draw for the tubing and is steeper than the rearward flank surface 32. Each groove has a depth D in a radial direction between its root surface 30 and the arc of adjacent land surfaces 36. Preferably, the helix angle A is or is about 40°, angle B is or is about 37° and angle C is or is about 16°. Setting the flank angles to 37° and 16° corresponds to 40° and 69° to the central longitudinal axis of the tubing drawn over the plug 12 as explained further below.

Replace paragraph (0029) with the following new paragraph (0029):

(0029) The plug body 17 comprises an intermediate length section 38 disposed between a forward length section 40 and a rearward length section 42. The intermediate length section 38 has an external cylindrical configuration, the forward length section 40 is chamfered, and the rearward length section 42 is tapered. The forward length section 40 is joined to the intermediate length

section 38 at a sharp circumferential edge 44 and is chamfered from edge 44 to a planar forward end surface defining forward end 18. The rearward length section 42 is tapered from intermediate length section 38 to a planar rearward end surface defining rearward end 20. Accordingly, the cross-sectional configuration of rearward length section 42 decreases from intermediate length section 38 to rearward end 20, and the rearward length section 42 tapers from the intermediate length section 38 at a taper angle E shown in Fig. 1. The intermediate length section 38 is of uniform constant cross-section between forward length section 40 and rearward length section 42, with the outer diameter of the intermediate length section extending longitudinally in a parallel direction to axis 22. As seen in Fig. 1, the forward groove and land ends are located on the forward length section 40, and the rearward groove and land ends are located on the rearward length section 42.

Replace paragraph (0033) with the following new paragraph (0033):

(0033) The plug 12 is used to form internal helical or spiral ribs in tubing in a cold drawing process as depicted in Fig 3. The shaft 14, which comprises the back-bar or the adapter and back-bar, is coupled with plug 12 to extend longitudinally from plug 12 in the rearward direction coaxial with the central longitudinal axis 22 as far as practically possible. The plug 12 is disposed in a die orifice 66 of a drawing die 67 which will typically be rigidly secured to the draw bench. The plug body 17 is rotatable within the die orifice but is constrained against longitudinal movement by the connector and shaft as described above. The die orifice 66 will normally have a cylindrical configuration with an inlet 68 that may be angled or flared to facilitate the insertion of an end of a length of steel tubing 70 into the die orifice 66 for being drawn longitudinally over and relative to the plug 12 as the tubing is moved longitudinally in the forward direction over and along the shaft 14 as shown by an arrow in Fig. 3.

The plug body 17 is centrally located within the die orifice 66 such that an annular gap or space is presented between the plug body 17 and a constricting surface 71 of die 67 to receive the circumferential wall 72 of an incoming length of the tubing 70 which is drawn over the plug body to have internal ribs or rifles formed therein. Tubing 70 is selected from raw hollow tubing in which the circumferential wall 72 defines an external circumferential surface, an internal circumferential surface and a lumen circumscribed by the internal circumferential surface. The circumferential wall 72 has an initial wall thickness between the external and internal circumferential surfaces, and the initial wall thickness is sufficiently greater than the radial dimension of the annular gap between plug body 17 and the constricting surface 71 of die 67 so that the circumferential wall 72 of the tubing 70 is constricted by the constricting surface and forced into the grooves 26 of plug body 17 as the tubing 70 is drawn through the die orifice 66 in the forward direction. The tubing 70 is constrained from rotating as it is drawn through the die orifice.